

<110> DENKA SEIKEN CO., LTD  
National Institute of Infectious Diseases

<130> DK0001

<151> 1999-06-22

<160> 34

&lt;170&gt; PatentIn Ver. 2.1

<210> 1

<211> 545

<212> PRT

<213> Hu/NLV/Kashiwa 645/1999/JP

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Met Glu Pro Val Ala Gly Ala Ala Thr Ala Ala Ala Thr Ala Gly Gln  
35 40 45

Val Asn Met Ile Asp Pro Trp Ile Met Asn Asn Tyr Val Gln Ala Pro  
50 55 60

Gln Gly Glu Phe Thr Ile Ser Pro Asn Asn Thr Pro Gly Asp Ile Leu  
65 70 75 80

Phe Asp Leu Gln Leu Gly Pro His Leu Asn Pro Phe Leu Ser His Leu  
85 90 95

Ala Gln Met Tyr Asn Gly Trp Val Gly Asn Met Lys Val Lys Val Leu  
100 105 110

Leu Ala Gly Asn Ala Phe Thr Ala Gly Lys Ile Ile Ile Ser Cys Ile  
115 120 125

Pro Pro Gly Phe Ala Ala Gln Asn Ile Ser Ile Ala Gln Ala Thr Met  
130 135 140

Phe Pro His Val Ile Ala Asp Val Arg Val Leu Glu Pro Ile Glu Val  
145 150 155 160

Pro Leu Glu Asp Val Arg Asn Val Leu Phe His Asn Asn Asp Asn Ala  
165 170 175

Pro Thr Met Arg Leu Val Cys Met Leu Tyr Thr Pro Leu Arg Ala Ser  
180 185 190

Gly Ser Ser Ser Gly Thr Asp Pro Phe Val Ile Ala Gly Arg Val Leu  
195 200 205

Thr Cys Pro Ser Pro Asp Phe Ser Phe Leu Phe Leu Val Pro Pro Asn  
210 215 220

Val Glu Gln Lys Thr Lys Pro Phe Ser Val Pro Asn Leu Pro Leu Asn  
225 230 235 240

Thr Leu Ser Asn Ser Arg Val Pro Ser Leu Ile Lys Ser Met Met Val  
245 250 255

Ser Arg Asp His Gly Gln Met Val Gln Phe Gln Asn Gly Arg Val Thr  
260 265 270

Leu Asp Gly Gln Leu Gln Gly Thr Thr Pro Thr Ser Ala Ser Gln Leu  
275 280 285

Cys Lys Ile Arg Gly Ser Val Phe His Ala Asn Gly Gly Asn Gly Tyr  
290 295 300

Asn Leu Thr Glu Leu Asp Gly Ser Pro Tyr His Ala Phe Glu Ser Pro  
305 310 315 320

Ala Pro Ile Gly Phe Pro Asp Leu Gly Glu Cys Asp Trp His Met Glu  
325 330 335

Ala Ser Pro Thr Thr Gln Phe Asn Thr Gly Asp Val Ile Lys Gln Ile  
340 345 350

Asn Val Lys Gln Glu Ser Ala Phe Ala Pro His Leu Gly Thr Ile Gln  
355 360 365

Ala Asp Gly Leu Ser Asp Val Ser Val Asn Thr Asn Met Ile Ala Lys

370	375	380
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385	390	395 400
Pro Trp Val Ile Pro Arg Tyr Gly Ser Thr Leu Thr Glu Ala Ala Gln		
	405	410 415
Leu Ala Pro Pro Ile Tyr Pro Pro Gly Phe Gly Glu Ala Ile Val Phe		
	420	425 430
Phe Met Ser Asp Phe Pro Ile Ala His Gly Thr Asn Gly Leu Ser Val		
	435	440 445
Pro Cys Thr Ile Pro Gln Glu Phe Val Thr His Phe Val Asn Glu Gln		
	450	455 460
Ala Pro Thr Arg Gly Glu Ala Ala Leu Leu His Tyr Leu Asp Pro Asp		
	465	470 475 480
Thr His Arg Asn Leu Gly Glu Phe Lys Leu Tyr Pro Glu Gly Phe Met		
	485	490 495
Thr Cys Val Pro Asn Ser Ser Gly Thr Gly Pro Gln Thr Leu Pro Ile		
	500	505 510
Asn Gly Val Phe Val Phe Val Ser Trp Val Ser Arg Phe Tyr Gln Leu		
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Lys Pro Val Gly Thr Ala Gly Pro Ala Cys Arg Leu Gly Ile Arg Arg		
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Ser		
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 <213> Hu/NLV/Seto 124/1989/JP

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Pro Asp Asn Val Gln Ser Val Gln Phe Gln Asn Gly Arg Cys Thr Leu  
260 265 270

Asp Gly Arg Leu Val Gly Thr Thr Pro Val Ser Leu Ser His Val Ala  
 275 280 285  
 Lys Ile Arg Gly Thr Ser Asn Gly Thr Val Ile Asn Leu Thr Glu Leu  
 290 295 300  
 Asp Gly Thr Pro Phe His Pro Phe Glu Gly Pro Ala Pro Ile Gly Phe  
 305 310 315 320  
 Pro Asp Leu Gly Gly Cys Asp Trp His Ile Asn Met Thr Gln Phe Gly  
 325 330 335  
 His Ser Ser Gln Thr Gln Tyr Asp Val Asp Thr Thr Pro Asp Thr Phe  
 340 345 350  
 Val Pro His Leu Gly Ser Ile Gln Ala Asn Gly Ile Gly Ser Gly Asn  
 355 360 365  
 Tyr Ile Gly Val Leu Ser Trp Val Ser Pro Pro Ser His Pro Ser Gly  
 370 375 380  
 Ser Gln Val Asp Leu Trp Lys Ile Pro Asn Tyr Gly Ser Ser Ile Thr  
 385 390 395 400  
 Glu Ala Thr His Leu Ala Pro Ser Val Tyr Pro Pro Gly Phe Gly Glu  
 405 410 415  
 Val Leu Val Phe Phe Met Ser Lys Ile Pro Gly Pro Gly Ala Tyr Ser  
 420 425 430  
 Leu Pro Cys Leu Leu Pro Gln Glu Tyr Ile Ser His Leu Ala Ser Glu  
 435 440 445  
 Gln Ala Pro Thr Val Gly Glu Ala Ala Leu Leu His Tyr Val Asp Pro  
 450 455 460  
 Asp Thr Gly Arg Thr Leu Gly Glu Phe Lys Ala Tyr Pro Asp Gly Phe  
 465 470 475 480  
 Leu Thr Cys Val Pro Asn Gly Ala Ser Ser Gly Pro Gln Gln Leu Pro  
 485 490 495  
 Ile Asn Gly Val Phe Val Phe Val Ser Trp Val Ser Arg Phe Tyr Gln  
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Arg Arg  
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<213> Hu/NLV/Funabashi 258/1996/JP

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Met Glu Pro Val Ala Gly Pro Thr Thr Ala Val Ala Thr Ala Gly Gln  
35 40 45

Val Asn Met Ile Asp Pro Trp Ile Val Asn Asn Phe Val Gln Ser Pro  
50 55 60

Gln Gly Glu Phe Thr Ile Ser Pro Asn Asn Thr Pro Gly Asp Ile Leu  
65 70 75 80

Phe Asp Leu Gln Leu Gly Pro His Leu Asn Pro Phe Leu Ser His Leu  
85 90 95

Ser Gln Met Tyr Asn Gly Trp Val Gly Asn Met Arg Val Arg Ile Leu  
100 105 110

Leu Ala Gly Asn Ala Phe Ser Ala Gly Lys Ile Ile Val Cys Cys Val  
115 120 125

Pro Pro Gly Phe Thr Ser Ser Ser Leu Thr Ile Ala Gln Ala Thr Leu  
130 135 140

Phe Pro His Val Ile Ala Asp Val Arg Thr Leu Glu Pro Ile Glu Met  
145 150 155 160

Pro Leu Glu Asp Val Arg Asn Val Leu Tyr His Thr Asn Asp Asn Gln  
165 170 175

Pro Thr Met Arg Leu Val Cys Met Leu Tyr Thr Pro Leu Arg Thr Gly  
180 185 190

Gly Gly Ser Gly Asn Ser Asp Ser Phe Val Val Ala Gly Arg Val Leu  
195 200 205

Thr Ala Pro Ser Ser Asp Phe Ser Phe Leu Phe Leu Val Pro Pro Thr  
210 215 220

Ile Glu Gln Lys Thr Arg Ala Phe Thr Val Pro Asn Ile Pro Leu Gln  
225 230 235 240

Thr Leu Ser Asn Ser Arg Phe Pro Ser Leu Ile Gln Gly Met Ile Leu  
245 250 255

Ser Pro Asp Ala Ser Gln Val Val Gln Phe Gln Asn Gly Arg Cys Leu  
260 265 270

Ile Asp Gly Gln Leu Leu Gly Thr Thr Pro Ala Thr Ser Gly Gln Leu  
275 280 285

Phe Arg Val Arg Gly Lys Ile Asn Gln Gly Ala Arg Thr Leu Asn Leu  
290 295 300

Thr Glu Val Asp Gly Lys Pro Phe Met Ala Phe Asp Ser Pro Ala Pro  
305 310 315 320

Val Gly Phe Pro Asp Phe Gly Lys Cys Asp Trp His Met Arg Ile Ser  
325 330 335

Lys Thr Pro Asn Asn Thr Ser Ser Gly Asp Pro Met Arg Ser Val Ser  
340 345 350

Val Gln Thr Asn Val Gln Gly Phe Val Pro His Leu Gly Ser Ile Gln  
355 360 365

Phe Asp Glu Val Phe Asn His Pro Thr Gly Asp Tyr Ile Gly Thr Ile  
370 375 380

Glu Trp Ile Ser Gln Pro Ser Thr Pro Pro Gly Thr Asp Ile Asn Leu  
385 390 395 400

Trp Glu Ile Pro Asp Tyr Gly Ser Ser Leu Ser Gln Ala Ala Asn Leu  
405 410 415

Ala Pro Pro Val Phe Pro Pro Gly Phe Gly Glu Ala Leu Val Tyr Phe





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Phe Asp Leu Gln Leu Gly Pro His Leu Asn Pro Phe Leu Ser His Leu						
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Ser Gln Met Tyr Asn Gly Trp Val Gly Asn Met Arg Val Arg Val Val						
	100			105		110
Leu Ala Gly Asn Ala Phe Thr Ala Gly Lys Val Ile Ile Cys Cys Val						
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Pro Pro Gly Phe Gln Ser Arg Thr Leu Ser Ile Ala Gln Ala Thr Leu						
	130			135		140
Phe Pro His Val Ile Ala Asp Val Arg Thr Leu Asp Pro Val Glu Val						
	145			150		155
Pro Leu Glu Asp Val Arg Asn Val Leu Tyr His Asn Asn Asp Thr Gln						
	165			170		175
Pro Thr Met Arg Leu Leu Cys Met Leu Tyr Thr Pro Leu Arg Thr Gly						
	180			185		190
Gly Ala Ser Gly Gly Thr Asp Ser Phe Val Val Ala Gly Arg Val Leu						
	195			200		205
Thr Cys Pro Gly Pro Asp Phe Asn Phe Leu Phe Leu Val Pro Pro Thr						
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Val Glu Gln Lys Thr Arg Pro Phe Thr Val Pro Asn Ile Pro Leu Lys						
	225			230		235
Tyr Leu Ser Asn Ser Arg Ile Pro Asn Pro Ile Glu Gly Met Ser Leu						
	245			250		255
Ser Pro Asp Gln Thr Gln Asn Val Gln Phe Gln Asn Gly Arg Cys Thr						
	260			265		270
Ile Asp Gly Gln Pro Leu Gly Thr Thr Pro Val Ser Val Ser Gln Leu						
	275			280		285
Cys Lys Phe Arg Gly Arg Ile Thr Ser Gly Gln Arg Val Leu Asn Leu						
	290			295		300
Thr Glu Leu Asp Gly Ser Pro Phe Met Ala Phe Ala Ala Pro Ala Pro						
	305			310		315
						320

Ala Gly Phe Pro Asp Leu Gly Ser Cys Asp Trp His Ile Glu Met Ser  
325 330 335

Lys Ile Pro Asn Ser Ser Thr Gln Asn Asn Pro Ile Val Thr Asn Ser  
340 345 350

Val Lys Pro Asn Ser Gln Gln Phe Val Pro His Leu Ser Ser Ile Thr  
355 360 365

Leu Asp Glu Asn Val Ser Ser Gly Gly Asp Tyr Ile Gly Thr Ile Gln  
370 375 380

Trp Thr Ser Pro Pro Ser Asp Ser Gly Gly Ala Asn Thr Asn Phe Trp  
385 390 395 400

Lys Ile Pro Asp Tyr Gly Ser Ser Leu Ala Glu Ala Ser Gln Leu Ala  
405 410 415

Pro Ala Val Tyr Pro Pro Gly Phe Asn Glu Val Ile Val Tyr Phe Met  
420 425 430

Ala Ser Ile Pro Gly Pro Asn Gln Ser Gly Ser Pro Asn Leu Val Pro  
435 440 445

Cys Leu Leu Pro Gln Glu Tyr Ile Thr His Phe Ile Ser Glu Gln Ala  
450 455 460

Pro Ile Gln Gly Glu Ala Ala Leu Leu His Tyr Val Asp Pro Asp Thr  
465 470 475 480

Asn Arg Asn Leu Gly Glu Phe Lys Leu Tyr ~~Pro~~ Gly Gly Tyr Leu Thr  
485 490 495

Cys Val Pro Asn Ser Ser Ser Thr Gly ~~Pro~~ Gln Gln Leu Pro Leu Asp  
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Gly Val Phe Val Phe Ala Ser Trp Val Ser Arg Phe Tyr Gln Leu Lys  
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<213> Hu/NLV/Narita 104/1997/JP

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35 40 45  
Asp Pro Trp Ile Arg Asn Asn Phe Val Gln Ala Pro Gly Gly Glu Phe  
50 55 60  
Thr Val Ser Pro Arg Asn Ala Pro Gly Glu Ile Leu Trp Ser Ala Pro  
65 70 75 80  
Leu Gly Pro Asp Leu Asn Pro Tyr Leu Ser His Leu Ala Arg Met Tyr  
85 90 95  
Asn Gly Tyr Ala Gly Gly Phe Glu Val Gln Val Ile Leu Ala Gly Asn  
100 105 110  
Ala Phe Thr Ala Gly Lys Ile Ile Phe Ala Ala Val Pro Pro Asn Phe  
115 120 125  
Pro Thr Glu Gly Leu Ser Pro Ser Gln Val Thr Met Phe Pro His Ile  
130 135 140  
Ile Val Asp Val Arg Gln Leu Glu Pro Val Leu Ile Pro Leu Pro Asp  
145 150 155 160  
Val Arg Asn Asn Phe Tyr His Tyr Asn Gln Ser Asn Asp Ser Thr Ile  
165 170 175  
Lys Leu Ile Ala Met Leu Tyr Thr Pro Leu Arg Ala Asn Asn Ala Gly  
180 185 190  
Asp Asp Val Phe Thr Val Ser Cys Arg Val Leu Thr Arg Pro Ser Pro  
195 200 205

Asp Phe Asp Phe Ile Phe Leu Val Pro Pro Thr Val Glu Ser Arg Thr  
210 215 220

Lys Pro Phe Thr Val Pro Ile Leu Thr Val Glu Glu Met Ser Asn Ser  
225 230 235 240

Arg Phe Pro Ile Pro Leu Glu Lys Leu Tyr Thr Gly Pro Ser Ser Ala  
245 250 255

Phe Val Val Gln Pro Gln Asn Gly Arg Cys Thr Thr Asp Gly Val Leu  
260 265 270

Leu Gly Thr Thr Gln Leu Ser Ala Val Asn Ile Cys Thr Phe Arg Gly  
275 280 285

Asp Val Thr His Ile Ala Gly Ser His Asp Tyr Thr Met Asn Leu Ala  
290 295 300

Ser Gln Asn Trp Ser Asn Tyr Asp Pro Thr Glu Glu Ile Pro Ala Pro  
305 310 315 320

Leu Gly Thr Pro Asp Phe Val Gly Lys Ile Gln Gly Met Leu Thr Gln  
325 330 335

Thr Thr Arg Glu Asp Gly Ser Thr Arg Ala His Lys Ala Thr Val Ser  
340 345 350

Thr Gly Ser Val His Phe Thr Pro Lys Leu Gly Ser Val Gln Tyr Thr  
355 360 365

Thr Asp Thr Asn Asn Asp Phe Gln Thr Gly Gln Asn Thr Lys Phe Thr  
370 375 380

Pro Val Gly Val Ile Gln Asp Gly Asn Asn His Gln Asn Glu Pro Gln  
385 390 395 400

Gln Trp Val Leu Pro Asn Tyr Ser Gly Arg Thr Gly His Asn Val His  
405 410 415

Leu Ala Pro Ala Val Ala Pro Thr Phe Pro Gly Glu Gln Leu Leu Phe  
420 425 430

Phe Arg Ser Thr Met Pro Gly Cys Ser Gly Tyr Pro Asn Met Asn Leu  
435 440 445

Asp Cys Leu Leu Pro Gln Glu Trp Val Gln His Phe Cys Gln Glu Ala

450 455 460

Ala Pro Ala Gln Ser Asp Val Ala Leu Leu Arg Phe Val Asn Pro Asp  
465 470 475 480

Thr Gly Arg Val Leu Phe Glu Cys Lys Leu His Lys Ser Gly Tyr Val  
485 490 495

Thr Val Ala His Thr Gly Pro His Asp Leu Val Ile Pro Pro Asn Gly  
500 505 510

Tyr Phe Arg Phe Asp Ser Trp Val Asn Gln Phe Tyr Thr Leu Ala Pro  
515 520 525

Met Gly Asn Gly Ala Gly Arg Arg Arg Ala Leu  
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Ala Gly Ala Ala Ile Ala Ala Pro Leu Thr Gly Gln Gln Asn Ile Ile  
35 40 45

Asp Pro Trp Ile Met Asn Asn Phe Val Gln Ala Pro Gly Gly Glu Phe  
50 55 60

Thr Val Ser Pro Arg Asn Ser Pro Gly Glu Val Leu Leu Asn Leu Glu  
65 70 75 80

Leu Gly Pro Glu Ile Asn Pro Tyr Leu Ala His Leu Ala Arg Met Tyr  
85 90 95

Asn Gly Tyr Ala Gly Gly Phe Glu Val Gln Val Val Leu Ala Gly Asn  
100 105 110

Ala Phe Thr Ala Gly Lys Ile Ile Phe Ala Ala Ile Pro Pro Asn Phe

Pro Ile Asp Asn Leu Ser Ala Ala Gln Ile Thr Met Cys Pro His Val  
130 135 140

Ile Val Asp Val Arg Gln Leu Glu Pro Val Asn Leu Pro Met Pro Asp  
145 150 155 160

Val Arg Asn Asn Phe Phe His Tyr Asn Gln Gly Ser Asp Ser Arg Leu  
165 170 175

Arg Leu Ile Ala Met Leu Tyr Thr Pro Leu Arg Ala Asn Asn Ser Gly  
180 185 190

Asp Asp Val Phe Thr Val Ser Cys Arg Val Leu Thr Arg Pro Ser Pro  
195 200 205

Asp Phe Ser Phe Asn Phe Leu Val Pro Pro Thr Val Glu Ser Lys Thr  
210 215 220

Lys Pro Phe Thr Leu Pro Ile Leu Thr Ile Ser Glu Met Ser Asn Ser  
225 230 235 240

Arg Phe Pro Val Pro Ile Glu Ser Leu His Thr Ser Pro Thr Glu Asn  
245 250 255

Ile Val Val Gln Cys Gln Asn Gly Arg Val Thr Leu Asp Gly Glu Leu  
260 265 270

Met Gly Thr Thr Gln Leu Leu Pro Ser Gln Ile Cys Ala Phe Arg Gly  
275 280 285

Val Leu Thr Arg Ser Thr Ser Arg Ala Ser Asp Gln Ala Asp Thr Ala  
290 295 300

Thr Pro Arg Leu Phe Asn Tyr Tyr Trp His Val Gln Leu Asp Asn Leu  
305 310 315 320

Asn Gly Thr Pro Tyr Asp Pro Ala Glu Asp Ile Pro Gly Pro Leu Gly  
325 330 335

Thr Pro Asp Phe Arg Gly Lys Val Phe Gly Val Ala Ser Gln Arg Asn  
340 345 350

Leu Asp Ser Thr Thr Arg Ala His Glu Ala Lys Val Asp Thr Thr Ala  
355 360 365

Gly Arg Phe Thr Pro Lys Leu Gly Ser Leu Glu Ile Ser Thr Asp Ser  
370 375 380

Asp Asp Phe Asp Gln Asn Gln Pro Thr Lys Phe Thr Pro Val Gly Ile  
385                      390                      395                      400

Gly Val Asp Asn Glu Ala Glu Phe Gln Gln Trp Ser Leu Pro Asp Tyr  
405 410 415

Ser Gly Gln Phe Thr His Asn Met Asn Leu Ala Pro Ala Val Ala Pro  
420 425 430

Asn Phe Pro Gly Glu Gln Leu Leu Phe Phe Arg Ser Gln Leu Pro/Ser  
435 440 445

Ser Gly Gly Arg Ser Asn Gly Val Leu Asp Cys Leu Val Pro Gln Glu  
450 455 460

Trp Val Gln His Phe Tyr Gln Glu Ser Ala Pro Ala Gln Thr Gln Val  
465 470 475 480

Ala Leu Val Arg Tyr Val Asn Pro Asp Thr Gly Lys Val / Leu Phe Glu  
485 490 495

Ala Lys Leu His Lys Leu Gly Phe Met Thr Ile Ala / Asn Asn Gly Asp  
500 505 510

Ser Pro Ile Thr Val Pro Pro Asn Gly Tyr Phe Arg Phe Glu Ser Trp  
515 520 525

Val Asn Pro Phe Tyr Thr Leu Ala Pro Met Gly Thr Gly Asn Gly Arg  
530 535 540

Arg Arg Ile Gln  
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<211> 540

<212> PRT

<213> Hu/NLV/Ichikawa 754/1998/JP

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Gly Leu Val Pro Glu Ser Asn Asn Glu Ala Met Ala Leu Glu Pro Val  
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Val Gly Ala Ser Leu Ala Ala Pro Val Thr Gly Gln Thr Asn Ile Ile  
35 40 45

Asp Pro Trp Ile Arg Thr Asn Phe Val Gln Ala Pro Asn Gly Glu Phe  
50 55 60

Thr Val Ser Pro Arg Asn Ser Pro Gly Glu Ile Leu Val Asn Leu Glu  
65 70 75 80

Leu Gly Pro Glu Leu Asn Pro Tyr Leu Ala His Leu Ala Arg Met Tyr  
85 90 95

Asn Gly Tyr Ala Gly Gly Met Glu Val Gln Val Met Leu Ala Gly Asn  
100 105 110

Ala Phe Thr Ala Gly Lys Ile Ile Phe Ala Ala Val Pro Pro Tyr Phe  
115 120 125

Pro Val Glu Asn Leu Ser Pro Ser Gln Ile Thr Met Phe Pro His Val  
130 135 140

Ile Ile Asp Val Arg Thr Leu Glu Pro Val Leu Leu Pro Met Pro Asp  
145 150 155 160

Val Arg Ser Thr Leu Phe His Phe Asn Gln Lys Asp Glu Pro Lys Met  
165 170 175

Arg Leu Val Ala Met Leu Tyr Thr Pro Leu Arg Ser Asn Gly Ser Gly  
180 185 190

Asp Asp Val Phe Thr Val Ser Cys Arg Ile Leu Thr Arg Pro Ser Pro  
195 200 205

Glu Phe Asp Phe Thr Tyr Leu Val Pro Pro Thr Val Glu Ser Lys Thr  
210 215 220

Lys Pro Phe Thr Leu Pro Val Leu Thr Leu Gly Glu Leu Ser Asn Ser  
225 230 235 240

Arg Phe Pro Leu Ser Ile Asp Glu Met Val Thr Ser Pro Asn Glu Ser  
245 250 255



Ile Val Val Gln Pro Gln Asn Gly Arg Val Thr Leu Asp Gly Glu Leu  
260 265 270

Leu Gly Thr Thr Gln Leu Gln Ala Cys Asn Ile Cys Ser Ile Arg Gly  
275 280 285

Lys Val Thr Gly Gln Val Pro Ser Glu Gln His Met Trp Asn Leu Glu  
290 295 300

Ile Thr Asn Leu Asn Gly Thr Gln Phe Asp Pro Thr Asp Asp Val Pro  
305 310 315 320

Ala Pro Leu Gly Val Pro Asp Phe Ala Gly Glu Val Phe Gly Val Leu  
325 330 335

Ser Gln Arg Asn Arg Gly Glu Ser Asn Pro Ala Asn Arg Ala His Asp  
340 345 350

Ala Val Val Ala Thr Tyr Ser Asp Lys Tyr Thr Pro Lys Leu Gly Leu  
355 360 365

Val Gln Ile Gly Thr Trp Asn Thr Asn Asp Val Glu Asn Gln Pro Thr  
370 375 380

Lys Phe Thr Pro Ile Gly Leu Asn Glu Val Ala Asn Gly His Arg Phe  
385 390 395 400

Glu Gln Trp Thr Leu Pro Arg Tyr Ser Gly Ala Leu Thr Leu Asn Met  
405 410 415

Asn Leu Ala Pro Ala Val Ala Pro Leu Phe Pro Gly Glu Arg Leu Leu  
420 425 430

Phe Phe Arg Ser Tyr Val Pro Leu Lys Gly Gly Phe Gly Asn Pro Ala  
435 440 445

Ile Asp Cys Ser Val Pro Gln Glu Trp Val Gln His Phe Tyr Gln Glu  
450 455 460

Ser Ala Pro Ser Leu Gly Asp Val Ala Leu Val Arg Tyr Val Asn Pro  
465 470 475 480

Asp Thr Gly Arg Val Leu Phe Glu Ala Lys Leu His Lys Gly Gly Phe  
485 490 495

Leu Thr Val Ser Ser Thr Ser Thr Gly Pro Val Val Val Pro Ala Asn

500 505 510

Gly Tyr Phe Lys Phe Asp Ser Trp Val Asn Gln Phe Tyr Ser Leu Ala  
515 520 525

Pro Met Gly Thr Gly Asn Gly Arg Arg Arg Val Gln  
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<212> PRT  
<213> Hu/NLV/Chitta 1876/1996/JP

<400> 8

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35 40 45

Asp Pro Trp Ile Arg Leu Asn Phe Val Gln Ala Pro Asn Gly Glu Phe  
50 55 60

Thr Val Ser Pro Arg Asn Ser Pro Gly Glu Val Leu Leu Asn Leu Glu  
65 70 75 80

Leu Gly Pro Glu Leu Asn Pro Tyr Leu Ala His Leu Ser Arg Met Tyr  
85 90 95

Asn Gly Tyr Ala Gly Gly Val Glu Val Gln Val Leu Leu Ala Gly Asn  
100 105 110

Ala Phe Thr Ala Gly Lys Leu Val Phe Ala Ala Val Pro Pro His Phe  
115 120 125

Pro Leu Glu Asn Ile Ser Pro Gly Gln Ile Thr Met Phe Pro His Val  
130 135 140

Ile Ile Asp Val Arg Thr Leu Glu Pro Val Leu Leu Pro Leu Pro Asp  
145 150 155 160

Val Arg Asn Asn Phe Phe His Tyr Asn Gln Gln Asn Glu Pro Arg Met

Arg Leu Val Ala Met Leu Tyr Thr Pro Leu Arg Ser Asn Gly Ser Gly  
180 185 190

Asp Asp Val Phe Thr Val Ser Cys Arg Val Leu Thr Arg Pro Ser Pro  
195 200 205

Asp Phe Asp Phe Asn Tyr Leu Val Pro Pro Thr Leu Glu Ser Lys Thr  
210 215 220

Lys Pro Phe Thr Leu Pro Ile Leu Thr Ile Gly Glu Leu Thr Asn Ser  
225 230 235 240

Arg Phe Pro Val Pro Ile Asp Glu Leu Tyr Thr Ser Pro Asn Glu Ser  
245 250 255

Leu Val Val Gln Pro Gln Asn Gly Arg Cys Ala Leu Asp Gly Gln Leu  
260 265 270

Gln Gly Thr Thr Gln Leu Leu Pro Thr Ala Ile Cys Ser Phe Arg Gly  
275 280 285

Arg Ile Asn Gln Lys Val Ser Gly Glu Asn His Val Trp Asn Met Gln  
290 295 300

Val Thr Asn Ile Asn Gly Thr Pro Phe Asp Pro Thr Gly Asp Val Pro  
305 310 315 320

Ala Pro Leu Gly Thr Pro Asp Phe Ser Gly Lys Leu Phe Gly Val Leu  
325 330 335

Ser Gln Arg Asp His Asp Asn Ala Cys Arg Ser His Asp Ala Val Ile  
340 345 350

Ala Thr Asn Ser Ala Lys Phe Thr Pro Lys Leu Gly Ala Ile Gln Ile  
355 360 365

Gly Thr Trp Glu Glu Asp Asp Val His Ile Asn Gln Pro Thr Lys Phe  
370 375 380

Thr Pro Val Gly Leu Phe Glu Asn Glu Gly Phe Asn Gln Trp Thr Leu  
385 390 395 400

Pro Asn Tyr Ser Gly Ala Leu Thr Leu Asn Met Gly Leu Ala Pro Pro  
405 410 415

Val Ala Pro Thr Phe Pro Gly Glu Gln Ile Leu Phe Phe Arg Ser His  
420 425 430

Ile Pro Leu Lys Gly Gly Val Ala Asp Pro Val Ile Asp Cys Leu Leu  
435 440 445

Pro Gln Glu Trp Ile Gln His Leu Tyr Gln Glu Ser Ala Pro Ser Glu  
450 455 460

Ser Asp Val Ala Leu Ile Arg Phe Thr Asn Pro Asp Thr Gly Arg Val  
465 470 475 480

Leu Phe Glu Ala Lys Leu His Arg Ser Gly Tyr Ile Thr Val Ala Asn  
485 490 495

Thr Gly Ser Arg Pro Ile Val Val Pro Ala Asn Gly Tyr Phe Arg Phe  
500 505 510

Asp Thr Trp Val Asn Gln Phe Tyr Ser Leu Ala Pro Met Gly Thr Gly  
515 520 525

Asn Gly Arg Arg Arg Val Gln  
530 535

<210> 9

<211> 542

<212> PRT

<213> Hu/NLV/Kashiwa 47/1997/JP

<400> 9

Met Lys Met Ala Ser Asn Asp Ala Ala Pro Ser Asn Asp Gly Ala Ala  
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Ser Leu Val Pro Glu Gly Ile Asn Gly Thr Met Pro Leu Glu Pro Val  
20 25 30

Ala Gly Ala Ser Ile Ala Ala Pro Val Ala Gly Gln Thr Asn Ile Ile  
35 40 45

Asp Pro Trp Ile Arg Thr Asn Phe Val Gln Ala Pro Asn Gly Glu Phe  
50 55 60

Thr Val Ser Pro Arg Asn Ser Pro Gly Glu Ile Leu Leu Asn Leu Glu  
65 70 75 80

Leu Gly Pro Asp Leu Asn Pro Tyr Leu Ala His Leu Ser Arg Met Tyr  
85 90 95

Asn Gly Tyr Ala Gly Gly Val Glu Val Gln Val Leu Leu Ala Gly Asn  
100 105 110

Ala Phe Thr Ala Gly Lys Ile Leu Phe Ala Ala Ile Pro Pro Asn Phe  
115 120 125

Leu Val Asp Met Ile Ser Pro Ala Gln Ile Thr Met Leu Pro His Leu  
130 135 140

Ile Val Asp Val Arg Thr Leu Glu Pro Ile Met Thr Pro Leu Pro Asp  
145 150 155 160

Val Arg Asn Val Phe Tyr His Phe Asn Asn Gln Pro Gln Pro Arg Met  
165 170 175

Arg Leu Val Ala Met Leu Tyr Thr Pro Leu Arg Ser Asn Gly Ser Gly  
180 185 190

Asp Asp Val Phe Thr Val Ser Cys Arg Val Leu Thr Arg Pro Thr Pro  
195 200 205

Asp Phe Glu Phe Ile Tyr Leu Val Pro Pro Ser Val Glu Ser Lys Thr  
210 215 220

Lys Pro Phe Thr Leu Pro Ile Leu Thr Ile Ser Glu Leu Thr Asn Ser  
225 230 235 240

Arg Phe Pro Ile Pro Ile Glu Gln Leu Tyr Thr Ala Pro Asn Glu Thr  
245 250 255

Asn Val Val Gln Cys Gln Asn Gly Arg Cys Thr Leu Asp Gly Glu Leu  
260 265 270

Gln Gly Thr Thr Gln Leu Leu Ser Ser Ala Val Cys Phe Leu Gln Gly  
275 280 285

Arg Thr Val Ala Asp Asn Gly Asp Asn Trp Asp Gln Asn Leu Leu Gln  
290 295 300

Leu Thr Tyr Pro Asn Gly Ala Ser Tyr Asp Pro Thr Asp Glu Val Pro  
305 310 315 320

Ala Pro Leu Gly Thr Gln Asp Phe Ser Gly Met Leu Tyr Gly Val Leu  
325 330 335

Thr Gln Asp Asn Val Asn Val Ser Thr Gly Glu Ala Lys Asn Ala Lys  
340 345 350

Gly Ile Tyr Ile Ser Thr Thr Ser Gly Lys Phe Thr Pro Lys Ile Gly  
355 360 365

Ser Ile Gly Leu His Ser Ile Thr Glu His Val His Pro Asn Gln Gln  
370 375 380

Ser Arg Phe Thr Pro Val Gly Val Ala Val Asp Glu Asn Thr Pro Phe  
385 390 395 400

Gln Gln Trp Val Leu Pro His Tyr Ala Gly Ser Leu Ala Leu Asn Thr  
405 410 415

Asn Leu Ala Pro Ala Val Ala Pro Thr Phe Pro Gly Glu Gln Leu Leu  
420 425 430

Phe Phe Arg Ser Arg Val Pro Cys Val Gln Gly Leu Gln Gly Gln Asp  
435 440 445

Ala Phe Ile Asp Cys Leu Leu Pro Gln Glu Trp Val Asn His Phe Tyr  
450 455 460

Gln Glu Ala Ala Pro Ser Gln Ala Asp Val Ala Leu Ile Arg Tyr Val  
465 470 475 480

Asn Pro Asp Thr Gly Arg Thr Leu Phe Glu Ala Lys Leu His Arg Ser  
485 490 495

Gly Phe Ile Thr Val Ser His Thr Gly Ala Tyr Pro Leu Val Val Pro  
500 505 510

Pro Asn Gly His Phe Arg Phe Asp Ser Trp Val Asn Gln Phe Tyr Ser  
515 520 525

Leu Ala Pro Met Gly Thr Gly Asn Gly Arg Arg Arg Ile Gln  
530 535 540

<210> 10  
<211> 550  
<212> PRT

<213> Hu/NLV/Mie 7k/1994/JP

<400> 10

Met Lys Met Ala Ser Asn Asp Ala Ala Pro Ser Asn Asp Gly Ala Ala

1 5 10 15

Asn Leu Val Pro Glu Ala Asn Asp Glu Val Met Ala Leu Glu Pro Val

20 25 30

Val Gly Ala Ser Ile Ala Ala Pro Val Val Gly Gln Gln Asn Ile Ile

35 40 45

Asp Pro Trp Ile Arg Glu Asn Phe Val Gln Ala Pro Gln Gly Glu Phe

50 55 60

Thr Val Ser Pro Arg Asn Ser Pro Gly Glu Met Leu Leu Asn Leu Glu

65 70 75 80

Leu Gly Pro Glu Leu Asn Pro Tyr Leu Ser His Leu Ser Arg Met Tyr

85 90 95

Asn Gly Tyr Ala Gly Gly Met Gln Val Gln Val Val Leu Ala Gly Asn

100 105 110

Ala Phe Thr Ala Gly Lys Ile Ile Phe Ala Ala Val Pro Pro His Phe

115 120 125

Pro Val Glu Asn Ile Ser Ala Ala Gln Ile Thr Met Cys Pro His Val

130 135 140

Ile Val Asp Val Arg Gln Leu Glu Pro Val Leu Leu Pro Leu Pro Asp

145 150 155 160

Ile Arg Asn Arg Phe Phe His Tyr Asn Gln Glu Asn Thr Pro Arg Met

165 170 175

Arg Leu Val Ala Met Leu Tyr Thr Pro Leu Arg Ala Asn Ser Gly Glu

180 185 190

Asp Val Phe Thr Val Ser Cys Arg Val Leu Thr Arg Pro Ala Pro Asp

195 200 205

Phe Glu Phe Thr Phe Leu Val Pro Pro Thr Val Glu Ser Lys Thr Lys

210 215 220

Pro Phe Thr Leu Pro Ile Leu Thr Leu Gly Glu Leu Ser Asn Ser Arg

00227 66292550

225	230	235	240
Phe Pro Ala Ala Ile Asp Met Leu Tyr Thr Asp Pro Asn Glu Ser Ile			
245	250	255	
Val Val Gln Pro Gln Asn Gly Arg Cys Thr Leu Asp Gly Thr Leu Gln			
260	265	270	
Gly Thr Thr Gln Leu Val Pro Thr Gln Ile Cys Ala Phe Arg Gly Thr			
275	280	285	
Leu Ile Ser Gln Thr Ala Arg Ala Ala Asp Ser Thr Asp Ser Pro Gln			
290	295	300	
Arg Ala Arg Asn His Pro Leu His Val Gln Val Lys Asn Leu Asp Gly			
305	310	315	320
Thr Gln Tyr Asp Pro Thr Asp Asp Ile Pro Ala Val Leu Gly Ala Ile			
325	330	335	
Asp Phe Lys Gly Thr Val Phe Gly Val Ala Ser Gln Arg Asp Val Ser			
340	345	350	
Gly Gln Gln Glu Gln Gly His Tyr Ala Thr Arg Ala His Glu Ala His			
355	360	365	
Ile Asp Thr Thr Asp Pro Lys Tyr Ala Pro Lys Leu Gly Thr Ile Leu			
370	375	380	
Ile Lys Ser Gly Ser Asp Asp Phe Asn Thr Asn Gln Pro Ile Arg Phe			
385	390	395	400
Thr Pro Val Gly Met Gly Asp Asn Asn Trp Arg Gln Trp Glu Leu Pro			
405	410	415	
Asp Tyr Ser Gly Arg Leu Thr Leu Asn Met Asn Leu Ala Pro Ala Val			
420	425	430	
Ser Pro Ser Phe Pro Gly Glu Arg Ile Leu Phe Phe Arg Ser Ile Val			
435	440	445	
Pro Ser Ala Gly Gly Tyr Gly Ser Gly Tyr Ile Asp Cys Leu Ile Pro			
450	455	460	
Gln Glu Trp Val Gln His Phe Tyr Gln Glu Ala Ala Pro Ser Gln Ser			
465	470	475	480



Ala Val Ala Leu Val Arg Tyr Val Asn Pro Asp Thr Gly Arg Asn Ile  
485 490 495

Phe Glu Ala Lys Leu His Arg Glu Gly Phe Leu Thr Val Ala Asn Cys  
500 505 510

Gly Asn Asn Pro Ile Val Val Pro Pro Asn Gly Tyr Phe Arg Phe Glu  
515 520 525

Ala Trp Gly Asn Gln Phe Tyr Thr Leu Ala Pro Met Gly Ser Gly Gln  
530 535 540

Gly Arg Arg Arg Ala Gln  
545 550

<210> 11

<211> 541

<212> PRT

<213> Hu/NLV/Osaka 10-25/1999/JP

<400> 11

Met Lys Met Ala Ser Asn Asp Ala Ala Pro Ser Ser Asp Gly Ala Ala  
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Gly Leu Val Pro Glu Ile Asn Asn Glu Val Met Pro Leu Glu Pro Val  
20 25 30

Ala Gly Ala Ser Leu Ala Thr Pro Val Val Gly Gln Gln Asn Ile Ile  
35 40 45

Asp Pro Trp Ile Arg Asn Asn Phe Val Gln Ala Pro Ala Gly Glu Phe  
50 55 60

Thr Val Ser Pro Arg Asn Ser Pro Gly Glu Ile Leu Leu Asp Leu Glu  
65 70 75 80

Leu Gly Pro Asp Leu Asn Pro Tyr Leu Ala His Leu Ala Arg Met Tyr  
85 90 95

Asn Gly His Ala Gly Gly Met Glu Val Gln Ile Val Leu Ala Gly Asn  
100 105 110

Ala Phe Thr Ala Gly Lys Ile Ile Phe Ala Ala Ile Pro Pro Gly Phe  
115 120 125

Pro Tyr Glu Asn Leu Ser Pro Ser Gln Ile Thr Met Cys Pro His Val  
130 135 140

Ile Ile Asp Val Arg Gln Leu Glu Pro Phe Leu Leu Pro Met Pro Asp  
145                      150                      155                      160

Ile Trp Asn Asn Phe Phe His Tyr Asn Gln Gly Asn Asp Pro Lys Leu  
165 170 175

Arg Leu Val Ala Met Leu Tyr Thr Pro Leu Arg Ala Asn Asn Ser Gly  
180 185 190

Asp Asp Val Phe Thr Val Ser Cys Arg Val Leu Thr Lys Pro Ser Pro  
195 200 205

Asp Phe Glu Phe Thr Phe Leu Val Pro Pro Thr Val Glu Ser Lys/Thr  
210 215 220

Lys Gln Phe Ala Leu Pro Ile Leu Lys Ile Ser Glu Met Thr ~~Asn~~ Ser  
225 230 235 240

Arg Phe Pro Val Pro Val Asp Val Met Tyr Thr Ala Arg Asn Glu Asn  
245 250 255

Gln Val Val Gln Pro Gln Asn Gly Arg Val Thr Leu Asp Gly Glu Leu  
260 265 270

Leu Gly Thr Thr Pro Leu Leu Ala Val Asn Ile Cys Lys Phe Lys Gly  
275 280 285

Glu Val Ile Ala Lys Asn Gly Asp Val Arg Ser/Tyr Arg Met Asp Met  
290 295 300

Glu Ile Thr Asn Thr Asp Gly Thr Pro Ile / Asp Pro Thr Glu Asp Thr  
305                      310                      / 315                      320

Pro Gly Pro Ile Gly Ser Pro Asp Phe Gln Gly Ile Leu Phe Gly Val  
325 330 335

Ala Ser Gln Arg Asn Lys Asn Glu Gln Asn Pro Ala Thr Arg Ala His  
340 345 350

Glu Ala Ile Ile Asn Thr Gly Gly Asp His Leu Cys Pro Gln Ile Ser  
355 260 365

Ser Ser Glu Ile Tyr Leu Thr Ser Pro Asn Ile Leu Arg Cys Thr Asn  
370 375 380

Pro Gln Pro Leu Pro Gln Ser Gly Leu Arg Gly Thr Ile Leu Ile Arg  
385 390 395 400

Ser Asp Asn Gly His Cys His Asp Met Val Gly Thr Ser Pro Thr Thr  
405 410 415

Pro Thr Trp Pro Gln Gln Trp Arg Arg Cys Ser Arg Gly Ser Asn Cys  
420 425 430

Cys Ser Ser Gly His Arg Tyr Pro Val Pro Val Val Met Asn Arg Val  
435 440 445

Thr Trp Ile Val Leu Ser His Lys Ser Gly Phe Ser Thr Ser Thr Arg  
450 455 460

Lys Leu Pro Gln Leu Asn Leu Arg Trp Pro Leu Ile Arg Phe Ile Asn  
465 470 475 480

Pro Asp Thr Gly Arg Val Leu Phe Glu Ala Arg Leu His Lys Gln Gly  
485 490 495

Phe Ile Thr Val Ala His Thr Gly Asp Asn Pro Ile Val Met Pro Pro  
500 505 510

Asn Gly Tyr Phe Arg Phe Glu Ala Trp Val Asn Gln Phe Tyr Ser Leu  
515 520 525

Ala Pro Val Gly Thr Gly Lys Gly Arg Arg Arg Val Gln  
530 535 540

<210> 12

<211> 1638

<212> DNA

<213> Hu/NLV/Kashiwa 645/1999/JP

<400> 12

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cggataccag aggcaaatac agctgagcca atatcaatgg agcctgiggc tggggcagca 120  
acagctgccg caaccgctgg ccaagttaat atgattgacc cctggataat gaataattat 180  
gtgcaagccc ctcaaggiga atttaccata tgccttaata acacaccagg tgataattttg 240  
tttgatctac aattaggccc tcatctcaat cctttcttat cccatttggc ccaaattgat 300  
aacggttggg ttggcaatat gaaagagaag gtccatttgg cttgtaatgc cttcagggt 360

ggtaaaataa tcattagttg catacccctt ggctttgctg cgcaaaacat ttctatcgct 420  
 caggccacaa tgttccccc cgtttagctt galgttaggg ttttgaacc tatlgagggtg 480  
 ccattggaag atgtgaggaa tgtgctgttc cataacaatg acaacgcacc aacctgagg 540  
 ttggtgtgca tgcctacac ccccttgcga gccagtggta gctcatctgg aactgacct 600  
 ttgtgattg ctgggcgtgt tctgacatgc ccaagccctg actttagctt ctattcttg 660  
 gtcccccca atgtagagca aaagactaaa ccttttagtg tcccaaatct tccactgaat 720  
 acctttcaa attcaagagt ccttctctta attaaatcaa tgaatggatc cagagacct 780  
 gggcagatgg ttcatgttca aaacggtagg gtcaccttgg atgggcaact gcaaggcacc 840  
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 gggaaatggat ataacctaac tgaatggat gggagcccat accatgcttt tgagagccct 960  
 gcgccaatag ggtttcctga tctaggtgaa tgtgattggc acatggaggc ctccccctacc 1020  
 acccaattca atactggiga tgtataaaa caaattaatg tcaacaaga atcagcattt 1080  
 gctccccacc ttggtaccat acaagcagat ggcttgagtg atgtgagtgt caacactaac 1140  
 atgatagcca aattgggatg ggtgtcacc gtcagtgtat gacatagagg agatgtcgat 1200  
 ccgtgggtca ttccacgata tgggtcagct ttgaccgagg ccgccaatt agcccccca 1260  
 atatatcccc caggttttgg tgaggccatt gtgttttcca tgcagattt tctatagcc 1320  
 catggtacca atggcttgag tgtgcttgc accatacccc aagaatttgt cccccatttt 1380  
 gtcaatgaac agggccctac tagaggggaa gcagccctac tgcattattt agacctgat 1440  
 acccatagaa atcttggta gtttaatta taccctgagg ggttcatgac gtgtgtgct 1500  
 aatccagtg gcactgttcc acaaacctc ccaatcaatg gtgttttgt tttgtgtcc 1560  
 tgggtttcca gattctatca gttaaagcct gtgggaacag ccggccccgc ttgtaggctt 1620  
 ggcatcagaa gatcataa 1638

<210> 13

<211> 1593

<212> DNA

<213> Hu/NLV/Seto 124/1989/JP

<400> 13

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 ttgtaccgg aggttaatgc ttctgacctt ctgtcaatgg atctgtggc gggttcttca 120  
 acagcagttg caactgctgg gcaagttaac cctattgacc ctgggataat caataacttt 180  
 gtgcaggctc cccaaggta atttactatt tctccaaata atacccccgg tgggtttttg 240  
 ttgatttga gtctaggccc tcatcttaat ccttcttgt tacatttgc acaaatgtat 300  
 aatggctggg ttggcaacat gagagttagg attatgctgg ctggtaatgc attactgca 360  
 ggcaaaatta tagtttcttg catacctcca ggctttggct ccataatct tactatagca 420  
 caagcaactc tcttcccgca tgtgattgct galgttagga cttagacct aattgaagta 480  
 cctttggaag atgtlaaggaa tgttctcttt cataataatg atagaaatca acaaaccatg 540  
 cgccttgtgt giatgcilla taccacctc cgcactgggt gcggtacagg tgattctttt 600  
 glggttgtag ggcgagtcac gactgtctt agccccgatt tcaatttctt gtcttgggt 660  
 cctccacag tgaacagaa gactagacct ttacacctcc caaatttacc gctgagttct 720  
 ttgtcaaat cactgtctcc tcttccaatt agtggcatgg glatttctcc agacaatgtt 780  
 cagagtgtgc agtttcaaaa tggccgaigt accttagacg gggtcttgt ttgtaccacc 840  
 ccagtttccc tctccacgt tgcataagata aggggcactt ctlaatggac tggatcaat 900  
 ctaccggaat tggatggcac ccccttccac ccttttgaag gccctgcccc tattggtttt 960

ccagatcttg gtggctgtga ttggcatatt aatatgacac aatttgggca ttccagtcag 1020  
 actcaatatg atgtagatac ccccccgac accttcgtcc ctacattagg ticaatccag 1080  
 gcgaatggca ttggtagigg caaclatatt ggtgtcttla gctgggtctc cccccatca 1140  
 catccatctg gctctcaagt tgaictcttg aagatcccca aciatgggtc tagcatcaca 1200  
 gaggcaaccc atctagctcc ctctgtctat cctccctggct ttggagaggt gttagtcitt 1260  
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 ctaacctgtg tccctaacgg ggcagctcg ggcacacaac aactaccaat caatggagtc 1500  
 tttgtcttgg tttcatgggt gtccagattt tatcagttaa agcctgtggg aactgccagt 1560  
 tcggcaagag gtaggcttgg tttgcgccga taa 1593

<210> 14

<211> 1641

<212> DNA

<213> Hu/NLV/Funabashi 258/1996/JP

<400> 14

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 ctgggtgccgg aggttaatac agctgacccc ttacccatgg aaccctgggc tgggccaaca 120  
 acagccgtag ccactgctgg gcaagttaat atgattgac cctggatgt taataatttt 180  
 gtccagtcac cacaaggtga gtttacaatt tcccctaata ataccctcgg tgatattttg 240  
 ttgtatttac aattaggtcc acatctaaac cctttcttgt cacatctgtc ccaaatgtat 300  
 aatggctggg ttggaacat gagagttagg attctccttg ctgggaatgc attctcagct 360  
 ggaaagattt tagtttgttg tgtccccctt ggctttacat ctccctctct caccatagct 420  
 caggctacat tgtttcccca tggattgct gatgtgagaa ccttgaacc aatagaaatg 480  
 cccctcgagg atgtacgcaa tgtcctctat cacaccaatg ataataacc aacaatgcgg 540  
 ttgggtgtga tgcgttacac gccgctccgc actgggtggg ggtctggtta ttctgattct 600  
 ttgtgtgttg ctggcagggt gctcacggcc cctagtagog acttcagttt cttgttccct 660  
 gtcccgccct ccatagaaca gaagactcgg gcttttactg tgcctaatat ccccttgcaa 720  
 acctgtcca attctaggtt tccctccctc atccagggga tgattctgtc tctgacgca 780  
 tctcaagtgg tccaattcca aaatggacgt tgcctcatag atggtaact cctaggcact 840  
 acaccgcta catcaggaca gctgttcaga gtaaggaggaa agataaatca gggagcccg 900  
 acgtcaacc tcacagaggt ggaatggcaaa ccatcatgg catttgattc cctgcacct 960  
 gtgggttcc ccatatttgg aaaatgigat tggcatatga gaatcagcaa aaccccaaat 1020  
 aacacaagct caggtagacc catgcgcagt gtcagcgtgc aaaccaatgt gcagggtttt 1080  
 gtgccacacc taggaagtat acagtttgat gaagtggtca accacccac aggtgactac 1140  
 attggcacca ttgaatggat ttcccagcca tctacacccc ctggaacaga tattaatctg 1200  
 tgggagattc ccatatttgg atcatccctt tccaagcag ctatctggc cccccagta 1260  
 ttcccccttg gatttggtga ggctctgttg tactttgttt ctgcttttcc aggccccaac 1320  
 aaccgtcag ccccgaaatga tgaacttgt ctctccctc aagagtacat aaccacttt 1380  
 gtcagtgaac aagccccaac gatgggtgac gcagctttgc tgcattatgt cgacctgat 1440  
 accaacagaa accttgggga gtcaagcta taccctggag gttacctac ctgtgtacca 1500  
 aacgggttgg gtgccgggccc tcaacagctt cctctaatg gtgtctttct cttgtctct 1560  
 tgggtgtctc gttttatca gctcaagcct gtgggaacag ccaglacggc aagaagtagg 1620

cttggagatgc gccgtatata a

1641

<210> 15

<211> 1635

<212> DNA

<213> Hu/NLV/Chiba 407/1987/JP

<400> 15

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ctggtaccgg aggttaatac agctgacccc atacctattg accctgtggc tggctcctct 120  
acagcccttg ccacagcagg ccaggtaaat ttgattgac cctggataat caataatit 180  
gtgcaagccc cccagggcga gttcacaata tccccaaata ataccccccg tgatgtgctt 240  
tttgatttgc aattaggacc ccatitaaat cctttcctt cccaccttc tcagatgtat 300  
aatggttggg tgggcaacat gcgagtgctt gtgtcttgg ctggtaatgc tttacggct 360  
gggaagggtt taatttgtt gtgtccccct gggttccaat ctgcaccct ttctatagcc 420  
caggctactt ttttcccc tgaattgct gatgttagga ccttgacc ttagaagtg 480  
ccccitgaag atgttaggaa tgtgtgtat cataataatg acaccaacc caccatgcgc 540  
ctcctttgca tgtgtacac tctctccgc accgggggag cgtctggtgg gactgattct 600  
tttgtgtgg ctggcggtg actcactgt cggggccctg actttaactt ctattccta 660  
gtccctcca cagtcagca aaagaccgc ccttttactg tgcctaata cctttgaag 720  
tacctgtcta attccaggat cccaaatcct attgaaggta tgcattgac acctgaccag 780  
acccaaaatg ttcaattcca gaattgtagg tgtacaattg acggtcaacc ccttgggacc 840  
acacctgtct cagttatgca gttatgtaag tttaggggta ggattatc tggacagaga 900  
gtgtcaact tgacagagt ggatgttca ccttttaagg cctttccgc cccgcccct 960  
gcgggcttgc cagatcttg gtctgtgat tggcatattg aaatagtaa aatcccaat 1020  
tccagacccc agaacaacc aatagtgacc aattctgca aaccaatag tcaacagtt 1080  
gtccacact tgtcaagat cacccttgat gaaaatgtt ccagtggagg tgactatatt 1140  
ggcactatac aatggacct accctcttct gattctggcg ggccaatac aaatttttg 1200  
aaaatccctg actatgggtc cagcctagca gaagcttcac aactggcccc cgctgtctat 1260  
ccacctggt tcaatgaggt gatgtgtat ttatggcat ctatactgg tcccaatcag 1320  
tctgggtct ctaatttagt gccatgctg ctccccagg aatatatac acactttatt 1380  
agttagcagg ccccatcca ggttaggct gccttactc actatgtaga cccagacacc 1440  
aatcgcaatt tgggtgagtt caaattatat cctgggtgtt atttaacctg ttttcctaat 1500  
agttctagta ctggacctc acaacttct cttgatgtg tatttgtctt tgcctcttgg 1560  
gtttctagat ttatcaatt aaagcctgt ggaacagccg gaccggctag aggtaggctt 1620  
ggtgtccgta gataa 1635

<210> 16

<211> 1620

<212> DNA

<213> Hu/NLV/Narita 104/1997/JP

<400> 16

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gaggicaaca atgagggtat ggcttiggag cccgttgttg gtgccgctat tgcggcacct 120  
gtacggggcc aacaaaatgt aattgacccc tggattagaa ataattttgt acaagcccc 180  
ggtaggagat ttacagatc ccttagaaac gctccgggtg agatattatg gagcgcgccc 240  
tggggccctg atttgaaccc ctacctttct catttggcca gaatgtacaa tggttatgca 300  
ggtaggtttg aagtcaggt aatcctcgcg gggaacgcgt tcaccgccgg gaaaatcata 360  
tttgcagcag tcccacaaa ttttccaact gaaggcttga gccccagcca ggttactatg 420  
ttccccata taalagtaga tgttaggcaa ttggaacctg tattgatccc ctacctgat 480  
gttaggaata acttctatca ttacaatcaa tcaaatgatt ctaccattaa attgatagca 540  
atgctgtata caccacttag ggctaataat gctggggatg atgtcttcac agtctcttgt 600  
cgagtcctca cgaggccatc ccccgatttt gatttcatat tcttgggtcc acccacagtt 660  
gaatcaagaa cttaaaccatt caccgtccca atcttaactg ttgaggaaat gtctaactca 720  
agattcccca ttcttttggg aaagtgttac acgggtccca gcagtgttt tgttgtccaa 780  
ccacaaaatg gcagggtcac gactgatggc gtgctcttag gcactacca gctgtctgt 840  
gtcaacatct gcaccttcag aggggatgtc acccacattg caggcagtc tgaactataca 900  
atgaatttgg ctcttcaaaa ttggagcaat tatgaccaa cagaagaaat cccagcccc 960  
ctgggaactc cagatttctg gggaaagatc caaggcatgc tcacccaaac cacaagagag 1020  
gatggctcga cccgcgccc caaagctaca gtgagcactg ggagtgtcca cttaactcca 1080  
aagctgggca ggttcaata caccactgac acaacaatg attttcaac tggccaaaac 1140  
acgaaattca cccagtcgg cgtcatccag gacggttaata atcatcaaaa tgaaccccaa 1200  
caatgggtgc tcccaaatia ctgaggtaga actggtcata atgtgcacct agctcctgcc 1260  
gttgccecca ctttcccggt tgaacactt cttttcttta ggtccactat gcccggtgt 1320  
agcgggtatc ctaacatgaa tctggattgc ctactcccc aggaatgggt gcaacacttc 1380  
tgccaagaag cagctccagc acaatctgat tgggtcttgc tgagatttgt gaatccagac 1440  
acaggtaggg ttttgttga gtgcaagctc cataaatcag gctatgtcac agtggctcac 1500  
actggccgcg atgatttgtt tatccccccc aatggttact ttgatttga ctcttgggtc 1560  
aaccagttct acacacttgc ccccatggga aatggagcgg ggccagcgg tgcattataa 1620

<210> 17

<211> 1647

<212> DNA

<213> Hu/NLV/Sanbu 809/1998/JP

<400> 17

atgaagatgg cgtcgaatga cgtgtctcca tctaatgatg gtgccgccc cctcgtccca 60  
gagatcaaca atgaggcaat ggcgctagac ccagtggcgg gtgcagcga agcagcggcc 120  
ctcactgggt agcaaaacat aattgatccc tggattatga ataattttgt gcaagcacct 180  
ggtaggtgag ttacagtgtc ccttaggaat tccccgggtg aagtgttct taatttggaa 240  
tggggcccag aaataaaccc ttatttggcc catcttgcct gaatgtataa tggttatgca 300  
ggtaggattt aagtcaggt ggtcctggct gggaatgcgt tcacagcagg aaagataatc 360  
tttgcagcta tccccctaa ttttcaatt gataatctga gcgcagcaca aatcactatg 420  
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gttgcgaaca atttcttca ttacaatcaa gggcttgatt cgcgattgct ctttaattgca 540  
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agagtactga ctaggctag ccttgatttt tcatcaatt tcttgtccc acccacgtg 660  
gaatcaagaa caaaacctt taccctccct attctgacta tctctgaat gtccaattct 720





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 agtactagca caggccctgt tgtggttcca gccaatggct atttcaaatt tgattcctgg 1560  
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<210> 19

<211> 1608

<212> DNA

<213> Hu/NLV/Chitta 1876/1996/JP

<400> 19

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 ctcaccggcc aaaacaatat tatagacccc tggattagat taaattttgt gcaggctccc 180  
 aatggagagt tcacggtttc accccgcaac tcaccgggg aagtcctatt aaatttggaa 240  
 ttaggccccg aactaaatcc atacctagca cacctttcta gaatgtataa tggttatgca 300  
 ggtgggggtg aggtgcaagt actactggct gggaatgcgt tcacagctgg aaaattgggtg 360  
 ttgcccagcag ttccccctca ttctccatta gaaaacataa gccctgggtca gataactatg 420  
 ttctctcatg taattattga tgttaggact ttagaaccag ttgtgttggc ccttctgat 480  
 gtttaggaata atttctttca ttataatcag cagaatgaac cgtggatgag actcgtagca 540  
 atgctttata ctctctttag atctaattgt tctggtagtg agtatattac tgtctctctg 600  
 aggggtgcta cccgaccttc ccttgatttt gattttaatt acttgggtccc ccttacctt 660  
 gaattctaaa ctaaaccttt cacactccct atcttgacta taggggagtt aaccaactcc 720  
 aggttccctg tgcccataga tgagctctac accagcccc atgagagtct ggtgggtgcaa 780  
 cccagaacg ggagatgcgc gctagatggg gagctacagg gcacgactca gctcctccc 840  
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 tggaaatgac aggtcaccaa calcaacggg acccttttg atccaacagg ggaatgtccc 960  
 gctcctctag gaaccccaaga ttctcttggc aagctgtttg gtgtactaag ccagagagac 1020  
 catgataatg cctgtaggag tcatgatgca gtaattgcaa ccaactctgc caaattcact 1080  
 ccaaaattgg gcgtatata aattggcaca tgggaagaag acgatgtgca catcaaccaa 1140  
 cctactaagt ttactccagt tggcttgttt gaaatgaag gtttcaacca gtggacactc 1200  
 cccaattatt ctggagcctt aacacttaat atgggggttg cccctcctgt ggccccacc 1260  
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 gcccttccac aatcagatgt agcatgtat aggtttacaa atccagacac aggacgtgtt 1440  
 ctatttgaag caaaatlaca caggagtgtt tacattacag tggccaatac tggtagcaga 1500  
 ccgatttggg taccagctaa tggttacttc aggtttgata ctgggtcaa tcaattctat 1560  
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<210> 20

<211> 1629

<212> DNA

<213> Hu/NLV/Kashiwa 47/1997/JP

<400> 20

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gaggccatta atgagactat gccattggaa cccgttgcig gcgcactat tgcigcccca 120  
gtggcgggac aaaccaacat aatlgacccc tggataagaa caaattitgt acaagccccc 180  
aatggagagt ttacagtgtc accaagaaat tcccctggag aaattttatt aaatttagaa 240  
ttaggaccag atctgaatcc ttatttggcc catctttcaa gaatgtacaa tggttatgct 300  
ggaggigtgt aggtgcaagt gctccttgcg gggaacgcgt tcacagcagg taagatatgt 360  
tttgcagcaa tcccacctaa ctctctcgtg gatatgatta gccagctca aattactatg 420  
cttccccatt tgattgtaga tgttaggact ttggaacctt ttatgacacc ctgacctg 480  
gttaggaatg tgttctatca ttttaataat caacctcaac ctagaatgag gttagtggct 540  
atgctctaca cccatttgag gtctaattgt tcaggagatg atgtcttcac tgtgtcttgt 600  
agagtactaa ctaggccaac tctgatttt gaatttattt acctggigcc ccttctctga 660  
gagtcacaaa cttaaacatt cacactacca atattaacca tttctgaatt gaccaactcc 720  
cggttcccca ttccaatcga gcaattgtat acggctccaa atgaaaccaa tgtgttccag 780  
tgtcagaatg gcagggtcac cttagatgga gagctccagg gcacaacca gctgttatca 840  
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gcaccattgg gcactcagga ttttagtggg atgttgtatg gagtgttgac ccaggacaat 1020  
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cagcaatggg ttctgccaca ttatgcaggt agtctcgctc tcaacaccaa ttggcacct 1260  
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aatcattttt accaagaggc agccccctcc caagcagacg ttgcccttat taggtatgtc 1440  
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gtgtcacata ctgggtgctt cctcttctga gtcccccaa atggtcattt caggtttgat 1560  
tcttgggtta atcaatttta ctactcgcc cccatgggaa ctggcaatgg gcgtagaaga 1620  
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<210> 21

<211> 1653

<212> DNA

<213> Hu/NLV/Mie 7k/1994/JP

<400> 21

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gaggccaacg atgaggttat ggcacttga cccgttgggg gagcctcaat tgcagctcct 120  
gttctcggcc agcaaaatat aatlgacccc tggattagag aaaaatttgt ccaagcaca 180  
caaggtagat tcactgtttc accaaggaat tggcctggcg agatgctctt aaaccttgag 240  
ttgggccag aacttaatcc ctatllaagt catitgtccc gcatgtacaa cggatgtgct 300  
gggtggcatgc aggttcaggt ggtccttagct gggaatgcgt tcacagctgg gaaaatcctc 360  
tttgcgcgcg tggcaccaca ttccctgtg gaaaacatca gtgcagcca aataactatg 420

tgccccatg tgattgtga tglgagacaa ctigaaccag tgcctcgcg cctccctgat 480  
 ataaggaata ggctcttcca ctacaaccag gagaacaccc cccggatgag gcttgtagcc 540  
 atgctctata caccctaaag ggctaacctt ggtgaggatg taltcactgt gtcctgcagg 600  
 gtctgcactc gccccgcccc agattttgag ttcacatit tagttccacc aactgttgaa 660  
 tcaaaaacaa aaccctttac ttacctaic tlgactcttg gcgagttgtc taattctcgc 720  
 ttcccggtcg ctatagatat gctttatact gaccctaalg aalcaatagt tgtacaaccc 780  
 caaaatggta ggtgcaccc tgaatgtaca ttgcaaggca caacacaatt ggttccaca 840  
 cagatctgtg cttttagagg caccctgac agccagaccg cgagagcggc cgattcaaca 900  
 gatccccccc agagagcccc taatcatcca ctgcacgtcc aagttaagaa cctagacggt 960  
 acacaatatg acccaacgga cgatatacct gcagtccttg gggctattga ctcaaaagt 1020  
 acagictttg gattggctag tcagagggat gtttctggac aacaagaaca gggccactat 1080  
 gccaccgag cccatgaagc acacatcgac acaactgac caaagtatgc acccaatta 1140  
 ggcaacaatt cattaaatc tggttctgat gatttcaata caaaccagcc cattagattc 1200  
 actccgggtg gcatgggtga caacaattgg agacaatgg aattgcccga ctatcttggc 1260  
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 gctgttcac tggtaggta tglcaacccc gatactgggc gtaacatct tggggccaaa 1500  
 ctgcacagag aagggttctt caccgtggcc aactgtggaa acaatcctat ttagtcccc 1560  
 cccaatggct atttcagatt ttaggcttgg gtaatcagt ttatatact tcccccatg 1620  
 gatctggac aggggcgtag aagggccag taa 1653

<210> 22

<211> 1626

<212> DNA

<213> Hu/NLV/Osaka 10-25/1999/JP

<400> 22

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 gagatcaaca atgaggatcat gccccitgaa cccgtggctg gtgcacgct ggcgacacca 120  
 gtctcgggc aacaaaatat aattgatccc tggataagaa ataattttgt gcaggctcct 180  
 gcaggatggt ttactgttcc ccttaggaat tccccggag aaattttgct tgatttgaa 240  
 ttgggaccag atttgaatcc ctacctagcc catctggccc gcatgtataa tgggcacgct 300  
 ggccgcatgg aagtgcacaa tglcttggct gggaatgcgt tcacagcagg caaaatcata 360  
 ttgtctgcca tccccccagg gtccccatat gaaaatttgc cacttctca aattacaatg 420  
 tggccacatg ttataatga tgttaggcaa ttggagccat tcttttggc tatgccagac 480  
 atttggaaata atttcttcca ttataatcag ggcaatgac caaaatlgag gctagtgtct 540  
 atgctctata ctcttttgag ggctaataat tctgtgtatg atgtgttcac agtttcttgt 600  
 aggggtgctca caaaaccttc acccgacttt gaattcacat ttctagttcc cccacagtc 660  
 gagtctaaga ctaagcaatt cgtctcgcg attctcaaaa tatcagagat gactaattca 720  
 agattcccag taccagtga tglgaltac acggccagga acgagaacca ggtcgtccaa 780  
 ccacagaatg gcagggtcac actcgacggt gaactgttgg gcaccacccc cctgttggct 840  
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 agaattggata tggaaatcac taacatgat ggaacaccta ttgacccac agaggacaca 960  
 cctgttccca ttggctcacc agatttctag ggcatatct ttggcgttgc cagtacgcgc 1020

aalaagaatg agcaaaaccc cgccacgagg gctcatgaag ccataaltaa cactggaggga 1080  
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 tcagacaatg gacactgcc aatgatggg ggcacctcac caacaacacc cactggggcc 1260  
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 ccagacactg gtagggctct tttgaggct aggctacata agcaaggctt cataactgtg 1500  
 gctcataccg gtgacaaccc aattgtcatg ccaccaaalg ggtatttcag gttgaagct 1560  
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 caataa 1626

<210>23  
 <211>21  
 <212>DNA  
 <213>Artificial Sequence

<400>23  
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<210>24  
 <211>33  
 <212>DNA  
 <213>Artificial Sequence

<400>24  
 tttttttttt tttttttttt tttttttttt ttt 33

<210>25  
 <211>24  
 <212>DNA  
 <213>Artificial Sequence

<400>25  
 gccattatcg gcgcaracca agcc 24

<210>26  
 <211>20  
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<400>26

tgacctcgga ttgtggacag 20

<210>27

<211>31

<212>DNA

<213>Artificial Sequence

<400>27

gcgaattctt atctacggac accaagccta c 31

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<400>28

gtgaatgaag atggcgtcga 20

<210>29

<211>23

<212>DNA

<213>Artificial Sequence

<400>29

ccattataat gcacgcctgc gcc 23

<210>30

<211>22

<212>DNA

<213>Artificial Sequence

<400>30

ttgtgaatga agatggcgtc ga 22

<210>31

<211>24

<212>DNA

<213>Artificial Sequence

<400>31

aattattgaa tccttctacg cccg 24

<210>32

<211>28

<212>DNA

<213>Artificial Sequence

<400>32

aattactgaa cccttctacg cccatttc 28

<210>33

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ccataactga acccttctac gcc 23

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<400>34

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